

IN THE CLAIMS:

Please cancel claims 1-40 without prejudice, amend claims 41-56, and add new claims 57-65 as follows:

1. (Canceled).

2. (Canceled).

3. (Canceled).

4. (Canceled).

5. (Canceled).

6. (Canceled).

7. (Canceled).

8. (Canceled).

9. (Canceled).

10. (Canceled).

11. (Canceled).

12. (Canceled).

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36. (Canceled).

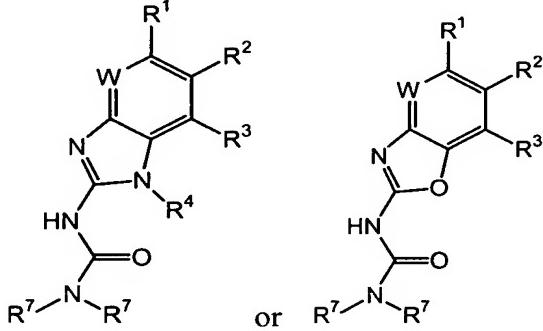
37. (Canceled).

38. (Canceled).

39. (Canceled).

40. (Canceled).

41. (Amended) A compound of formula IIa or IIb:



or a pharmaceutically acceptable salt derivative or prodrug thereof, wherein:

~~or a pharmaceutically acceptable derivative or prodrug thereof, wherein:~~

W is nitrogen or CR^a;

R^a is selected from hydrogen, halogen, -CF₃, R⁷, -OR⁷, or -N(R⁷)₂;

R¹ is an aryl or heteroaryl ring, wherein said ring is optionally substituted by up to four R⁹;

wherein an R⁹ substituent in the ortho-position of R¹ taken together with R² may form a

fused, unsaturated or partially unsaturated, optionally substituted 5-8 membered ring

having 0-2 ring heteroatoms selected from nitrogen, oxygen, or sulfur;

R² and R³ are each independently selected from R⁶, halogen, CN, SR⁶, OR⁶, N(R⁶)₂, NRCO₂R⁶, NRCO(N(R⁶)₂), CON(R⁶)₂, NRCOR⁶, NRN(R⁶)₂, COR⁶, CO₂R⁶, COCOR⁶, SO₂R⁶, SO₂N(R⁶)₂, or NRSO₂R⁶; or R² and R³ are taken together to form a fused, unsaturated or partially unsaturated, optionally substituted 5-8 membered ring containing 0-2 ring heteroatoms selected from nitrogen, oxygen, or sulfur;

R⁴ is selected from R⁶, CON(R⁶), COR⁶, CO₂R⁶, COCOR⁶, SO₂R⁶, SO₂N(R⁶)₂, or (CH₂)_yR²; y is 1-6;

Ar is a five membered heteroaryl, heterocyclyl, or carbocyclyl ring, wherein said ring is optionally substituted by up to three substituents selected from oxo, halogen, CN, NO₂, R⁸, OR⁸, NHR⁸, NHCO₂R⁸, NHCONHR⁸, COR⁸, CONHR⁸, SO₂R⁸, NSO₂NHR⁸ or SO₂NHR⁸;

each R⁶ is independently selected from R⁷ or an optionally substituted group selected from alkoxy, hydroxyalkyl, heterocyclyl, heterocyclcylalkyl, aryl, aralkyl, aralkoxy, aryloxyalkyl, heteroaryl, heteroaralkyl, heteroaralkoxy, or heteroarayloxyalkyl;

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each R⁷ is independently selected from hydrogen or an optionally substituted aliphatic group having one to six carbons, or two R⁷ on the same nitrogen taken together with the nitrogen optionally form a four to six member, saturated or unsaturated heterocyclic ring having one to three heteroatoms;

R⁸ is a C₁-C₄ aliphatic group, wherein two R⁸ on adjacent positions of Ar, or an aryl or heteroaryl ring, may be taken together with their intervening atoms to form a three to six membered fused ring;

each R⁹ is independently selected from oxo, halogen, CN, NO₂, T_n(haloalkyl), R⁶, SR⁶, OR⁶, OR⁸, N(R⁶)₂, CON(R⁶)₂, CON(R)COR⁶, COR⁶, CO₂R⁶, CO₂N(R⁶)₂, COCOR⁶, SO₂R⁶, SO₂N(R⁶)₂, N(R)T_nCO₂R⁶, N(R)T_nCON(R⁶)₂, N(R)T_nN(R⁶)₂, N(R)T_nNR₂R⁶, N(R)T_nNRCON(R⁶)₂, N(R)T_nCOR⁶, N(R)T_nNRCOR⁶, N(R)T_nSO₂N(R⁶)₂, N(R)T_nSO₂R⁶, T_nPO(OR⁷)₂, T_nOPO(OR⁷)₂, T_nSP(OR⁷)₂, T_nPO(OR⁷)₂, or T_nNPO(OR⁷)₂;

each Q is an independently selected C₁-C₃ branched or straight alkyl;

T is selected from -Q- or -Q_m-CH(Q_m-R²)-; and

each m and n are independently selected from zero or one.

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42. The compound according to claim A1, wherein said compound has one or more features selected from the group consisting of:

(a) R¹ is an optionally substituted aryl or heteroaryl ring;

(b) R² and R³ are each independently selected from halogen, CN, CO₂R⁶, OR⁶, or R⁶; and

(c) R⁹ is halogen, CN, oxo, R⁶, SR⁶, OR⁶, N(R⁶)₂, CON(R⁶)₂, CO₂R⁶, CON(R)COR⁶, N(R)T_nCO₂R⁶, N(R)T_nNRCO₂R⁶, N(R)T_nN(R⁶)₂, NO₂, T_n(haloalkyl), CO₂N(R⁶)₂, COR⁶, SO₂R⁶, or SO₂N(R⁶)₂.

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43. The compound according to claim 42, wherein:

(a) R¹ is an optionally substituted aryl or heteroaryl ring;

(b) R² and R³ are each independently selected from halogen, CN, CO₂R⁶, OR⁶, or R⁶; and

(c) R⁹ is halogen, CN, oxo, R⁶, SR⁶, OR⁶, N(R⁶)₂, CON(R⁶)₂, CO₂R⁶, CON(R)COR⁶, N(R)T_nCO₂R⁶, N(R)T_nNRCO₂R⁶, N(R)T_nN(R⁶)₂, NO₂, T_n(haloalkyl), CO₂N(R⁶)₂, COR⁶, SO₂R⁶, or SO₂N(R⁶)₂.

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44. The compound according to claim 43, wherein said compound has one or more features selected from the group consisting of:

(a) R¹ is an optionally substituted ring selected from phenyl, 2-pyridyl, 3-pyridyl, 4-pyridyl, thienyl, pyrimidyl, imidazol-1-yl, imidazol-2-yl, pyrazol-1-yl, amino-pyrimidinyl, quinolinyl, aminobenzimidazole, or indolyl;

(b) R² is hydrogen, alkoxy, aminoalkyl, or halogen;

(c) R³ is hydrogen, alkoxy, aralkoxy, or halogen;

(d) R⁴ is hydrogen or (CH₂)_yR²; and

(e) R⁹ is halogen, CN, oxo, R⁶, SR⁶, OR⁶, N(R⁶)₂, CON(R⁶)₂, CO₂R⁶, CON(R)COR⁶, or N(R)T_nCO₂R⁶.

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45. The compound according to claim 44, wherein:

(a) R¹ is an optionally substituted ring selected from phenyl, 2-pyridyl, 3-pyridyl, 4-pyridyl, thienyl, pyrimidyl, imidazol-1-yl, imidazol-2-yl, pyrazol-1-yl, amino-pyrimidinyl, quinolinyl, aminobenzimidazole, or indolyl;

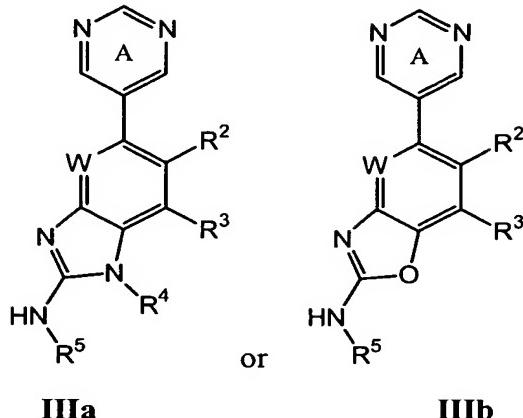
(b) R² is hydrogen, alkoxy, aminoalkyl, or halogen;

(c) R³ is hydrogen, alkoxy, aralkoxy, or halogen;

(d) R⁴ is hydrogen or (CH₂)_yR²; and

(e) R⁹ is halogen, CN, oxo, R⁶, SR⁶, OR⁶, N(R⁶)₂, CON(R⁶)₂, CO₂R⁶, CON(R)COR⁶, or N(R)T_nCO₂R⁶.

6 46. (Amended) A compound of formula IIIa or IIIb:



A1 or a pharmaceutically acceptable salt derivative or prodrug thereof, wherein:

W is nitrogen or CR^a;

R^a is selected from hydrogen, halogen, -CF₃, R⁷, -OR⁷, or -N(R⁷)₂;

Ring A is optionally substituted with up to three R⁹; wherein when an R⁹ substituent is in the ortho-position of Ring A, said R⁹ substituent may be taken together with R² to form an optionally substituted 5-7 membered ring containing 0-2 ring heteroatoms selected from nitrogen, oxygen, or sulfur;

R² and R³ are each independently selected from R⁶, halogen, CN, SR⁶, OR⁶, N(R⁶)₂, NR⁶CO₂R⁶, NR⁶CON(R⁶)₂, CON(R⁶)₂, NRCOR⁶, NRN(R⁶)₂, COR⁶, CO₂R⁶, COCOR⁶, SO₂R⁶, SO₂N(R⁶)₂, or NRSO₂R⁶; or R² and R³ are taken together to form a fused, unsaturated or partially unsaturated, optionally substituted 5-8 membered ring containing 0-2 ring heteroatoms selected from nitrogen, oxygen, or sulfur;

R⁴ is selected from R⁶, CON(R⁶), COR⁶, CO₂R⁶, COCOR⁶, SO₂R⁶, SO₂N(R⁶)₂, or (CH₂)_yR²; y is 1-6;

R⁵ is selected from R⁷, Ar, COAr, CON(R⁷)Ar, (CH₂)_yCO₂R, (CH₂)_yN(R⁷)₂, C(=NR¹⁰)-N(R⁷)₂, C(=NR¹⁰)-NRCOR, C(=S)-N(R⁷)₂, CON(R⁷)₂, COR, SO₂R, or SO₂N(R⁷)₂;

Ar is a five membered heteroaryl, heterocyclyl, or carbocyclyl ring, wherein said ring is optionally substituted by up to three substituents selected from oxo, halogen, CN, NO₂, R⁸, OR⁸, NHR⁸, NHCOR⁸, NHCONHR⁸, COR⁸, CONHR⁸, SO₂R⁸, NHSO₂NHR⁸ or SO₂NHR⁸;

each R⁶ is independently selected from R⁷ or an optionally substituted group selected from alkoxy, hydroxyalkyl, heterocyclyl, heterocyclcylalkyl, aryl, aralkyl, aralkoxy, aryloxyalkyl, heteroaryl, heteroaralkyl, heteroaralkoxy, or heteroarayloxyalkyl;

each R⁷ is independently selected from hydrogen or an optionally substituted aliphatic group having one to six carbons, or two R⁷ on the same nitrogen taken together with the nitrogen optionally form a four to six member, saturated or unsaturated heterocyclic ring having one to three heteroatoms;

R⁸ is a C₁-C₄ aliphatic group, wherein two R⁸ on adjacent positions of Ar, or an aryl or heteroaryl ring, may be taken together with their intervening atoms to form a three to six membered fused ring;

each R⁹ is independently selected from oxo, halogen, CN, NO₂, T_n(haloalkyl), R⁶, SR⁶, OR⁶, OR⁸, N(R⁶)₂, CON(R⁶)₂, CON(R)COR⁶, COR⁶, CO₂R⁶, CO₂N(R⁶)₂, COCOR⁶, SO₂R⁶, SO₂N(R⁶)₂, N(R)T_nCO₂R⁶, N(R)T_nCON(R⁶)₂, N(R)T_nN(R⁶)₂, N(R)T_nNRCO₂R⁶, N(R)T_nNRCON(R⁶)₂, N(R)T_nCOR⁶, N(R)T_nNRCOR⁶, N(R)T_nSO₂N(R⁶)₂, N(R)T_nSO₂R⁶, T_nPO(OR⁷)₂, T_nOPO(OR⁷)₂, T_nSP(OR⁷)₂, T_nPO(OR⁷)₂, or T_nNPO(OR⁷)₂;

each Q is an independently selected C₁-C₃ branched or straight alkyl;

T is selected from -Q- or -Q_m-CH(Q_m-R²)-;

each m and n are independently selected from zero or one; and R¹⁰ is selected from R⁷ or Ar.

7 47. The compound according to claim 46, wherein said compound has one or more features selected from the group consisting of:

- (a) R² and R³ are each independently selected from halogen, CN, CO₂R⁶, OR⁶, or R⁶;
- (b) R⁵ is CO₂R, COAr, COR, CON(R⁷)₂, Ar, (CH₂)_yCO₂R, or (CH₂)_yN(R⁷)₂; and
- (c) R⁹ is halogen, CN, oxo, R⁶, SR⁶, OR⁶, N(R⁶)₂, CON(R⁶)₂, CO₂R⁶, CON(R)COR⁶, N(R)T_nCO₂R⁶, N(R)T_nNRCO₂R⁶, N(R)T_nN(R⁶)₂, NO₂, T_n(haloalkyl), CO₂N(R⁶)₂, COR⁶, SO₂R⁶, or SO₂N(R⁶)₂.

8 48. The compound according to claim 47, wherein:

- (a) R² and R³ are each independently selected from halogen, CN, CO₂R⁶, OR⁶, or R⁶;
- (b) R⁵ is CO₂R, COAr, COR, CON(R⁷)₂, Ar, (CH₂)_yCO₂R, or (CH₂)_yN(R⁷)₂; and
- (c) R⁹ is halogen, CN, oxo, R⁶, SR⁶, OR⁶, N(R⁶)₂, CON(R⁶)₂, CO₂R⁶, CON(R)COR⁶, N(R)T_nCO₂R⁶, N(R)T_nNRCO₂R⁶, N(R)T_nN(R⁶)₂, NO₂, T_n(haloalkyl), CO₂N(R⁶)₂, COR⁶, SO₂R⁶, or SO₂N(R⁶)₂.

9 49. The compound according to claim 47, wherein said compound has one or more features selected from the group consisting of:

- (a) R² is hydrogen, alkoxy, aminoalkyl, or halogen;
- (b) R³ is hydrogen, alkoxy, aralkoxy, or halogen;
- (c) R⁴ is hydrogen or (CH₂)_yR²;
- (d) R⁵ is CON(R⁷)₂, Ar, (CH₂)_yCO₂R, or (CH₂)_yN(R⁷)₂; and
- (e) R⁹ is halogen, CN, oxo, R⁶, SR⁶, OR⁶, N(R⁶)₂, CON(R⁶)₂, CO₂R⁶, CON(R)COR⁶, or N(R)T_nCO₂R⁶.

10 50. The compound according to claim 49, wherein:

- (a) R² is hydrogen, alkoxy, aminoalkyl, or halogen;
- (b) R³ is hydrogen, alkoxy, aralkoxy, or halogen;
- (c) R⁴ is hydrogen or (CH₂)_yR²;
- (d) R⁵ is CON(R⁷)₂, Ar, (CH₂)_yCO₂R, or (CH₂)_yN(R⁷)₂; and
- (e) R⁹ is halogen, CN, oxo, R⁶, SR⁶, OR⁶, N(R⁶)₂, CON(R⁶)₂, CO₂R⁶, CON(R)COR⁶, or N(R)T_nCO₂R⁶.

11 51. (Amended) A composition comprising an effective amount of a compound according to any one of claims 41 to 50; and a pharmaceutically acceptable carrier.

12 52. The composition according to claim 51, wherein said compound is formulated in a pharmaceutically acceptable manner for administration to a patient.

13 53. (Amended) The composition according to claim 51 further comprising an additional therapeutic agent an antibiotic, an anti-inflammatory agent, a matrix metalloprotease inhibitor, a lipoxygenase inhibitor, a cytokine antagonist, an immunosuppressant, an anti-cancer agent, an anti-viral agent, a cytokine, a growth factor, an immunomodulator, a prostaglandin or an anti-vascular hyperproliferation compound.

14 54. (Amended) The composition according to claim 53 further comprising an additional therapeutic agent an antibiotic, an anti-inflammatory agent, a matrix metalloprotease inhibitor, a lipoxygenase inhibitor, a cytokine antagonist, an immunosuppressant, an anti-cancer agent, an anti-viral agent, a cytokine, a growth factor, an immunomodulator, a prostaglandin or an anti-vascular hyperproliferation compound.

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55. The composition according to claim 54 further comprising an agent that increases the susceptibility of bacterial organisms to antibiotics.

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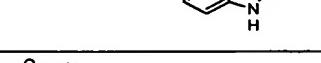
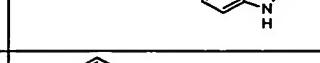
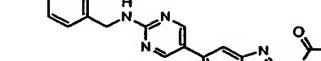
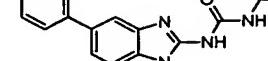
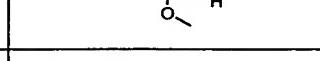
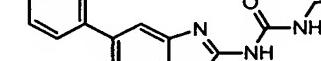
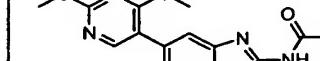
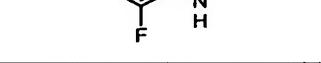
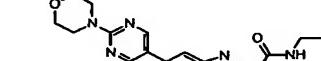
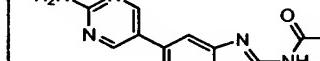
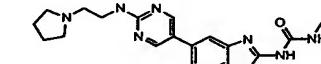
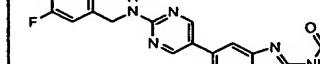
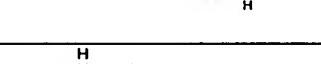
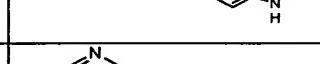
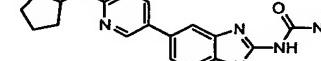
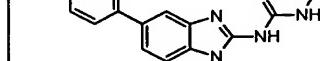
56. The composition according to claim 53 further comprising an agent that increases the susceptibility of bacterial organisms to antibiotics.

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57. (New) A compound selected from the group consisting of:

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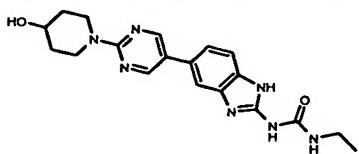
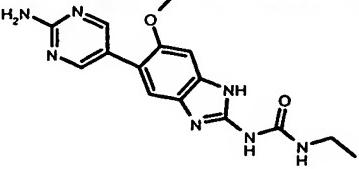
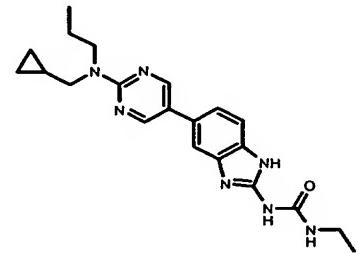
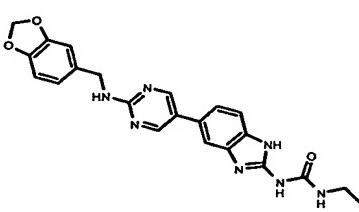
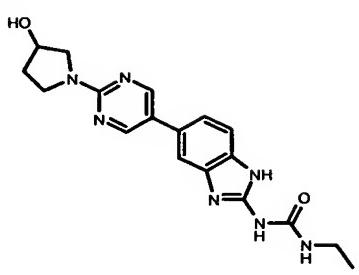
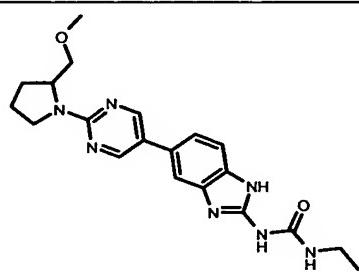
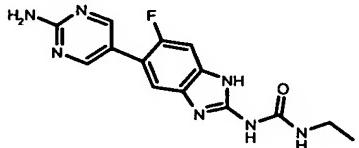
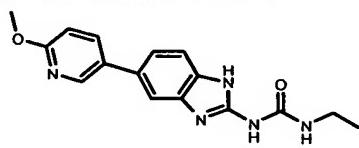
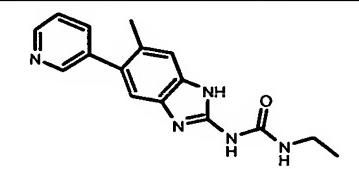
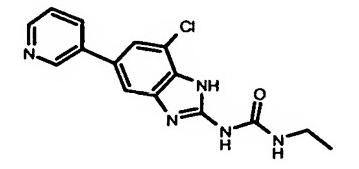
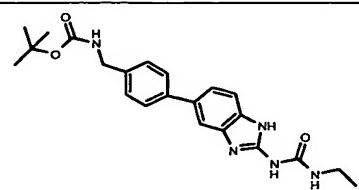
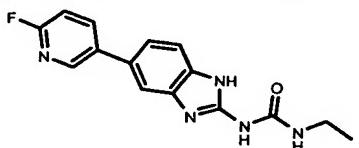
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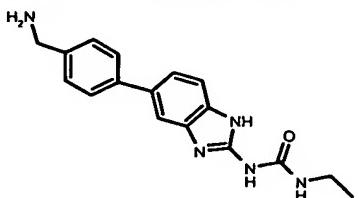
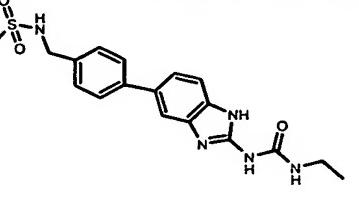
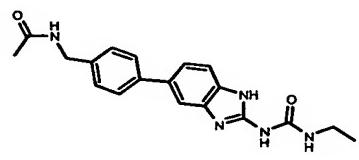
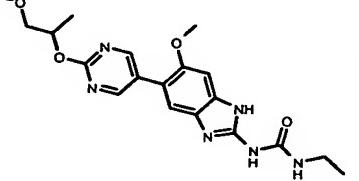
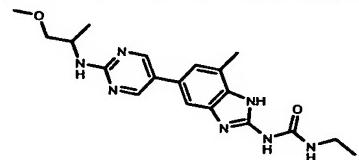
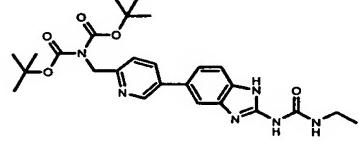
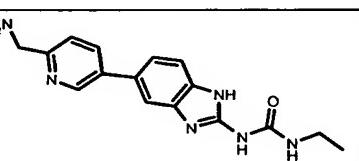
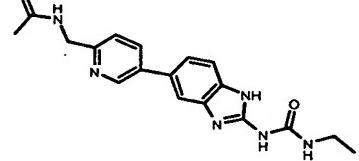
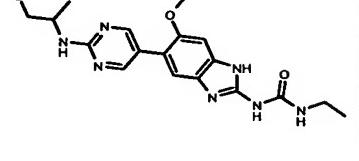
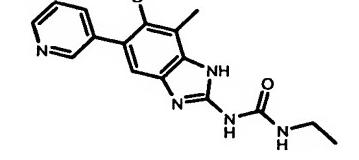
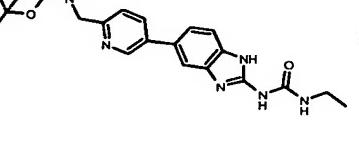
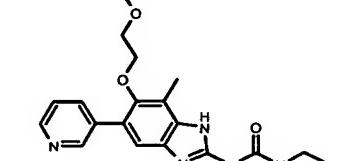
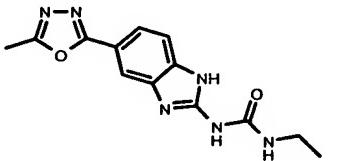
No. Ia-	Structure	No. Ia-	Structure
47		48	
49		50	
51		52	
53		54	
55		56	
57		58	
59		60	
61		62	
63		64	
65		66	

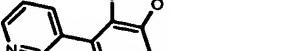
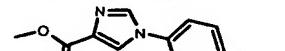
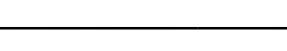
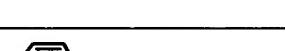
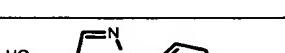
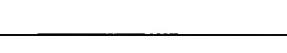
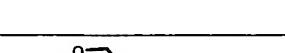
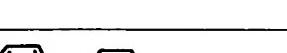
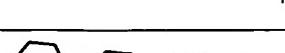
-11-

No. Ia-	Structure	No. Ia-	Structure
68		-	-
83		84	
89		92	
98		99	
100		102	
103		104	
105		106	

No. Ia-	Structure	No. Ia-	Structure
107		108	
109		110	
111		112	
113		116	
117		118	
119		120	
121		-	-
123		124	

No. Ia-	Structure	No. Ia-	Structure
125		126	
127		128	
129		130	
131		132	
133		134	
135		136	

No. Ia-	Structure	No. Ia-	Structure
137		138	
139		140	
141		142	
143		144	
145		146	
147		148	
149		150	

No. Ia-	Structure	No. Ia-	Structure
151		152	
153		154	
155		156	
157		158	
159		160	
161		162	
163		164	
165		166	

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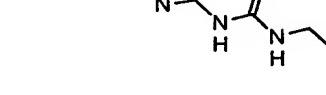
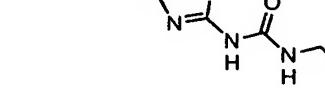
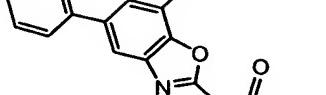
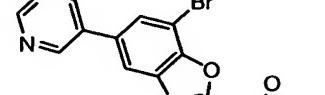
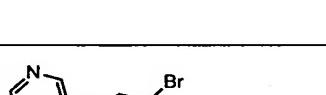
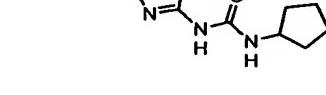
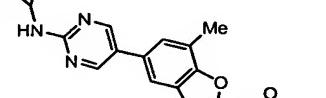
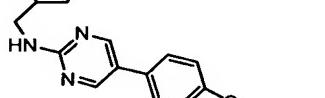
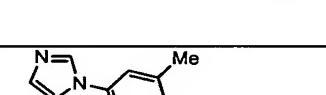
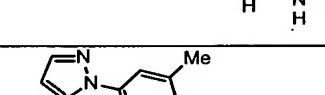
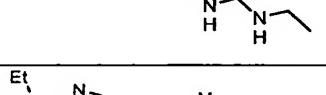
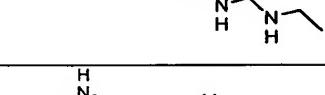
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- 17 -

No. Ia-	Structure	No. Ia-	Structure
185		186	
187		188	
189		190	
191		192	
193		194	
195		196	
197		198	
199		and 200	

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58. (New) A compound selected from the group consisting of:

No. Ib-	Structure	No. Ib-	Structure
3		4	
5		6	
7		8	
9		10	
11		12	
13		14	
15		16	

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No. Ib-	Structure	No. Ib-	Structure
17		20	
21		22	
23		24	
25		26	
27		and 28	

19

59. (New) A method of decreasing bacterial quantity in a biological sample comprising the step of contacting said biological sample with a compound according to either of claims 41 or 46.

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60. (New) The method according to claim 59 further comprising the step of contacting said biological sample with an agent which increases the susceptibility of bacterial organisms to antibiotics.

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61. (New) A method of inhibiting gyrase in a mammal, comprising the step of administering to said mammal a composition according to claim 51. 13

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62. (New) A method of treating a bacterial infection in a mammal in need thereof, comprising the step of administering to said mammal a therapeutically effective amount of a composition according to claim 51. 13

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63. (New) The method according to claim 62, wherein the bacterial infection to be treated is characterized by the presence of one or more of the following: *Streptococcus pneumoniae*, *Streptococcus pyogenes*, *Enterococcus faecalis*, *Enterococcus faecium*, *Klebsiella pneumoniae*, *Enterobacter sps.* *Proteus sps.* *Pseudomonas aeruginosa*, *E. coli*, *Serratia marcesens*, *S. aureus*, or *Coag. Neg. Staph.*

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64. (New) The method according to claim 62, wherein the bacterial infection to be treated is selected from one or more of the following: urinary tract infections, pneumonia, prostatitis, skin and soft tissue infections, intra-abdominal infections, or infections of febrile neutropenic patients.

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64. The method according to claim 62 further comprising the step of administering to said patient an antibiotic, an anti-inflammatory agent, a matrix metalloprotease inhibitor, a lipoxygenase inhibitor, a cytokine antagonist, an immunosuppressant, an anti-cancer agent, an anti-viral agent, a cytokine, a growth factor, an immunomodulator, a prostaglandin or an anti-vascular hyperproliferation compound, either as part of a multiple dosage form together with said compound or as a separate dosage form.

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65. The method according to claim 62 further comprising the step of administering to said patient an agent that increases the susceptibility of bacterial organisms to antibiotics.

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